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behavior, the reaction *and* the stimulus. It is true that neither behavior nor even conduct is mind; but only because mind *is* behavior, or conduct, *together with* the objects which these employ and isolate.

Precisely, then, as introspection obscures the instrumental and motive factors of mind, so general observation obscures its objective factor. And when these factors are united, they compose a whole mind, having a structure and a function that may be known by any knower, whatever his initial bias.

In conclusion let me briefly summarize the parts of mind which the analysis has revealed.

1. In the first place, a mind is a complex so organized as to proceed desideratively or interestedly. I mean here to indicate that character which distinguishes the living organism, having originally the instinct of self-preservation and acquiring in the course of its development a variety of special interests. I use the term *interest* primarily in its biological rather than in its psychological sense. Certain natural processes act consistently in such wise as to isolate, protect, and review themselves.

2. But such processes, interested in their general form, possess characteristic instrumentalities, notably a bodily nervous system which localizes the interest and conditions its intercourse with a physical environment.

3. Finally, a mind embraces certain objects, or parts of the environment, with which it deals in its own behalf.

The natural mind, or mind as here and now existing, is thus an organization possessing as distinguishable, but complementary, aspects, *interest, body,* and *objects.*

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THE EXISTENTIAL UNIVERSE OF DISCOURSE

IF things are to become objects of knowledge or the subject-matter of problems, they must at least reveal the fact that they exist. They must touch experience at some point, make a difference somewhere in the world that gets observed; if they do not, there is no clue anywhere to them, no possibility of knowing either what they are or that they are. Human judgments about existence must accordingly be directed upon a subject-matter which has been revealed within the horizon of human experience. The empirical world which has thus far been brought under observation includes the subject-matter of all problems about existence which can at present arise, and all the evidence upon which the solutions of those problems can at present be based. This is a situation which defines the limits of the subject-matter of all existential judgments and all existential problems, and which functions, therefore, as a universe of discourse, as the ultimate universe of discourse for all judgments and inquiries concerning existence. It need hardly be pointed out that the universe of discourse which we use to-day has been gradually achieved. It represents the labor of many centuries, and we may trust that its content will be enriched and modified by the labor of many more. But the fact that there is a universe of discourse can not constitute a problem under that universe of discourse. There are many problems of astronomy, but the fact that there is the science of astronomy can not be an astronomical problem. Anthropology is particularly rich in problems, but the existence of their subject-matter can not be an anthropological problem. In general, the subject-matter of problems is the precondition of having problems about that subject-matter. And if, as I have maintained above, the subject-matter of every judgment which affirms existence must be something which has betrayed its existence in the only possible way, the fact that we have such a subject-matter, *i. e.*, that we have the necessary precondition of any inquiry into existence, can not be a problem in that inquiry. We can not go behind or beyond our ultimate existential universe of discourse; and to say that something has been observed is, accordingly, simply to say that it is a member of the universe of discourse above referred to, and *vice versa*. Given this membership, given, that is, its discovered existence, an object may become the subject-matter of problems, and knowledge of it may be accumulated; but the object must be discovered before it can be studied, and the fact that there is a subject-matter can not constitute a problem about that subject-matter. Of course the fact that there is the science of chemistry may generate a problem, but not a problem of chemistry. The fact that things are observed may generate a problem on condition that their universe of discourse can be referred to a more comprehensive existential one. If, however, an object must be discovered before it can become the subject-matter of speculation which concerns existence, we have already reached the ultimate universe of discourse in predicating of objects only that they are observed, discovered or perceived; which is no more than to say that there is an existential subject-matter, or that there is an existential universe of discourse.

The term "problem about existence" or "existential problem" may suggest an inquiry as to whether or not the subject-matter of the problem exists. And then to say that the subject-matter must reveal its own existence before it can become the subject-matter of an existential problem, would contradict this meaning of the term. This line of criticism would be natural to many who were brought up on the problem of the "outer world." Here was a problem of which the subject-matter was apparently, The outer-world, does it exist? How, if its existence was revealed, should we have been in such dialectical straits about it? And yet, could its existence have been revealed any more clearly than it was? Nature seemed to be doing her part, while we did our best to baffle nature's excellent intentions. This digression is not so irrelevant as it may appear, for it is important to realize that existential discussions must start with existence and proceed to the investigation of that existence, following up whatever ramifications may be discovered. One reaches continually new starting-points and thus new subject-matter; but always our subject-matter must be the material we are investigating, and that would seem to be the existence we last started in to investigate, and not the existence we shall, with good fortune, arrive at. Thus, while an existential problem may be an inquiry whether something exists, it can never be an inquiry whether the subject-matter of the discussion exists.

However awkward the above statement of the case may be, the thing itself is extremely simple. It follows, however, that knowledge can not be defined in terms of perception. I do not know a thing when I perceive it unless I do more than perceive it. Knowledge of existence presumes and depends upon whatever existential universe of discourse we are provided with. The one at our disposal is, of course, widely different from the one men had to use before the middle of the fifteenth century; the alteration, however, has been brought about by the natural process of research and discovery, a process which there is no reason to suppose is going to cease in this generation or the next.

II.

Knowledge of existing things has to do, then, with members in the above-described universe of discourse. Without attempting a complete or a dialetical statement on this point, it can fairly be said that the kind of thing called knowledge is as conveniently provided for our inspection as any other kind of thing. Chemistry, biology, engineering, agriculture, astronomy, are bodies of knowledge that have been accumulated about portions of discovered existence. Such a formula as $NaCl = \text{salt}$ signifies knowledge of a particularly important type, knowledge of the way determinate things combine to produce determinate results. If now the word knowledge is to be used to mean uniformly the same sort of thing, it ought to be illustrated as well by one specimen as by another; and the symbol $NaCl$ is a convenient illustration.

Accordingly as we are interested in contemporaneous existence, or in relations of before and after, we can say salt $=$ NaCl, or Na $+$ Cl produce salt. I shall use the latter form of statement, for it is the genesis of results in time that is here kept in view, the way determinate things happen upon a basis of particular conditions. But what is going to happen has got to be learned by experience of the factors that enter into the situation. The potentialities in things are greater than appear on the surface; accordingly, it is natural for age to expatiate to youth on the capacities for good and evil which lie hidden in things, and which only experience can find out. Common sense thus distinguishes what we may call the inside and the outside of things. But common sense does not, like much philosophy, take one aspect and forget all about the other. Every one will understand what is meant if we call these two aspects "appearance" and "causality," or "immediacy" and "causality." The lesson that wisdom and maturity seek to instill into inexperience and youth is that things cooperate as factors to produce determinate results and that these results seem to have so little to do with the "appearance" of the factors which combine to produce them. If now we use the letters I and C to signify immediacy and causality, we can let I_{Na} stand for the immediacy of sodium and C_{Na} for the causality of sodium. We might then express by the symbol $I_{Na}C_{Na}$ what we mean by the word sodium. In the same way, the symbol Cl may be expanded to $I_{Cl}C_{Cl}$. And now substituting these analytic symbols for the usual ones of chemical notation, we can rewrite the formula for sodium chloride as follows: $I_{Na}C_{Na} + I_{Cl}C_{Cl}$ produce salt. All that has been done in the expanded formula is to exhibit the distinction between what was called above the inside and the outside of things, and to symbolize the two chemical elements sodium and chlorine as having an "inside" and an "outside." However, in the operation of these factors which results in the genesis of salt we are concerned only with their causality. In this efficacious relation, the immediacy of each of the causal factors is an irrelevant accretion, which can be therefore omitted from the formula, giving us $C_{Na} + C_{Cl}$ produce salt. The product NaCl has, however, its own immediacy, for the fact is not merely that something with a certain causality exists but that the thing in question has come under observation, *i. e.*, it has cooperated in generating a perception. If we let P stand for the organ of perception, I_P will signify its immediacy and C_P its causality or productivity or capacity for making differences. And now viewing our product salt as something having both causality and immediacy, we are able to write $C_{Na} + C_{Cl} + C_P$ produce salt; for, unless C_P enters into the factor combination, the product can not emerge into the existential universe of discourse. It must be understood that the letter P stands for more than sense organ in the restricted physiological sense; it means the organ of apperception as well as of perception, and it signifies, accordingly, temperament, idiosyncrasy, and all the complexity of organization which contributes to the generation of experience, *i. e.,* to the generation of whatever product finally emerges. So much by way of preliminary illustration, using a simple formula from chemistry.

Let us now make the formula general, and write $Y + Z + P$ produce X, in which X is any determinate product, whether thing or sensation; P, the organ of perception, and Y and Z, the causes cooperating with P to produce X. Omitting immediacy, we get $C_Y + C_Z + C_P$ produce X. X is the empirically total product and could be represented by I_XC_X if there were any occasion to do so. The formula $C_Y + C_Z + C_P$ produce X symbolizes the way things are pregnant with determinate possibilities. It means that things go together in determinate ways to yield determinate results, that the results are unaffected by the immediacy attached to the causes, and that the results must make observable differences somewhere if there is to be any clue to their existence. Whatever may be true of things which have not cooperated with C_P, the things that can be objects of science or of any genuine reference have entered the universe of discourse by making some difference which organs of observation can detect. The fact that human judgments about existence have to be made under the control of this universe of discourse is what is meant by insistance upon experience and empirical evidence.

I have sought thus far to avoid raising the question whether or not things are transformed by the cooperation of C_P. Without the cooperation of C_P, there is no explanation of immediacy belonging to the product X. It may be said that no explanation is necessary. To say this is to say that $C_P = 0$ is a more natural assumption than $C_P > 0$, and that the demand for an explanation of the immediacy of X must itself be justified. Besides, to make such a demand seems very much like going back on the position thus far defended, that the world as observed and experienced is our ultimate existential universe of discourse. It is, however, not the present writer who raises the question. The interest in formulating a doctrine of realism that shall be both critical and reasonable is a sufficient motive for considering that " naïve realism " which holds that things when unperceived have the same complement of secondary qualities that they have when perceived. The naïve realist evidently asserts $C_P = 0$, in so far as we are concerned with genesis of anything characteristic of X. It is a question of empirical evidence, and the evidence is that C_P does contribute its quota to the product, and that the quota is the immediacy aspect without which there might be a universe, but no universe of discourse. In any case the evidence has to be gathered from a world that has been observed; that is, the naïve realist has to use the same universe of discourse as the empiricist. The world of observed and noted things, of physiology and experiment, is a world where the constitution of C_P does, apparently, make a difference. This universe of discourse can not possibly contain the information that another and less determinate class of things has the same immediacy characteristics as the class of experienced things. The question which the naïve realist attempts to answer would seem to be a logically futile one upon the assumption $C_P = 0$, which has to be made in order to save the reduplication of secondary qualities outside the empirical universe of discourse.

How does the case stand if we make the other assumption, $C_P > 0$? This assumption regards the organ of observation as a factor which really cooperates, not in determining "reality," but in determining experience. From this point of view, to ask what things are like outside of experience is like asking how a sonata sounds to a man totally deaf, or whether a man would pronounce French and German the more correctly if he had no organs of speech; it is to ask what is the content of a product when we deny the conditions necessary to generate the product. To write $C_P = 0$ is to say there is no experience. The naïve realist need not deny that. This is the first step in the idealistic argument, but the next step that thereby material existence disappears, can not be taken. To take again our formula $C_Y + C_Z + C_P = X$, it is evident that all that happens when C_P is eliminated is that the other factors are unable to reveal their existence. They do not thereby, however, cease to exist as conditions which, when the cooperation of C_p is obtained, will produce a determinate X. To say that we can not know things as they are because we must know them under the conditions of our universe of discourse, reveals a curious conception of "reality." It is like saying we can not hear the real music because we have to hear it. A thing is as real in one relation as in another. The factors C_Y and C_Z are not less real when they cooperate with C_P than when they do not. The product $X = I_X C_X$, is not less real than a product C_X, forbidden ever to reveal its presence. But to ask further concerning the factors that cooperate with C_P, to ask what they may be in addition to being conditions for the functional operation of C_P, is to ask an artificial question. The realist, the idealist, and the empiricist must all start with the same ultimate universe of discourse, the world with which we have thus far become acquainted. Whatever the "real universe" has been about, the universe of discourse has not stood still through the interval from Thales to Lord Kelvin. It has been a creature of distinctly radical habits and has often enough brought shrill lamentation from its conservative custodians. A more unsatisfactory exponent of eternal verities can hardly be imagined.

III

The above considerations are not favorable to "naïve realism," using that term in the sense above indicated. They should, however, encourage a type of realism characterized by a scientific temper and a spirit of this-worldliness. For after all, "naïve realism" is a kind of other-worldliness. The realist of the type here advocated will work within the limits of his natural universe of discourse. It is a pity that he must be called a realist, for such terms have meaning only in the setting of polemical alternatives which express issues that are as good as dead. Such a "realist" who pursues inquiries about existence will ask his questions and frame his answers in terms of his empirical subject-matter. What does the problem of perception[1] now become? There is no longer any meaning in such a phrase as "the problem of perception." Perception is one of the processes in the natural world and its investigation is like the investigation of any other natural process. There must be various problems of perception as there are various problems of digestion. What those problems are depends upon the progress already made, the resources for investigation, and the difficulties encountered. The problems of perception will be inquiries into the operations of natural factors, and the solutions of those problems will be the discovery of how the things in question go together. The knowledge thus obtained will be a case of the type of thing symbolized by the expression "$Na + Cl$ produce salt." If now we recognize that the world of our acquaintance contains the subject-matter of all inquiry about existence and all the evidence with which to meet the demands of such inquiry, we seem entitled to say that experience is the ultimate existential universe of discourse. The term experience does not here mean anything different from empirical fact. It is the content of X generated by C_Y, C_Z, and C_P in combination. Experience may not be an altogether satisfactory name for that product, but there is no particular reason why it should not be understood, even by those who devote themselves to the confusion of pragmatists.

But why, then, use the word experience if we mean the empirical aggregate thus far envisaged? I wish a better word were available, but it should be a word that would keep us reminded that the subject-matter of existential theory is apperceived as well as perceived, and that the apperceptive factors included in the reference of C_P influence in a very decisive way the judgments of philosophy. These judgments often lead to new perceptions and modify existing apperceptions, and so the existential universe of discourse grows. In generating the subject-matter of human judgments, the human factor plays a part that can not be overlooked.

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[1] I may refer here to the article "Perception and Epistemology" by Professor F. J. E. Woodbridge in "Essays Philosophical and Psychological in Honor of William James" for such an account of this question as would be here in place.

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DISCUSSION

MOTOR PROCESSES AND MENTAL UNITY

IN Professor Judd's interesting article on "Motor Processes and Consciousness" in the issue of this JOURNAL for February 18, he sets forth his own view with a contrasting background of earlier theories which make use of "motor processes." He speaks of Dewey (1896) and McDougal (1898) as "among the first writers to emphasize the importance of motor processes as general conditions of consciousness"; but says they fail to apply the theory to specific cases. On the other hand, Münsterberg, Royce, and I are cited as dealing with specific cases (the case of the "general idea" being that selected in my own instance), and as not giving an account of the "relation of all motor processes to consciousness"; our "formulas are not comprehensive enough." The theory of Professor Judd, on the contrary, repairs these defects in both directions: he accounts for mental "organization" of all kinds, with the resulting "unity," in terms of motor processes, and also applies it to specific cases, such as recognition of particular degrees of unity, of "likeness," etc.

It is not, then, a question of the details of any theory of either the general or specific operations of the motor processes, that Professor Judd speaks of, but the question of the utilization of such processes *for purposes* of theory, either of general or of specific organization in consciousness. This gives his points a certain vagueness; but at the same time it makes his restrictions more comprehensive and decided, for all the writers cited. Have I, for one, not announced a general motor theory of mental organization and unity, and not applied it to other specific cases than just the one Professor Judd attributes to me?

Speaking only for myself, I may say that his allusion to my position is, in respect to the one problem to which he limits it, in a large sense correct, but that the limitations he sets upon it are altogether incorrect; and this bears upon the two matters in which Professor